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Llewellyn

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(54) **BOTTLE FOR DISINFECTING TOOTHBRUSH**

(71) Applicant: **Dan Llewellyn**, Carlstadt, NJ (US)

(72) Inventor: **Dan Llewellyn**, Carlstadt, NJ (US)

(73) Assignee: **Dan Llewellyn**, Carlstadt, NJ (US)

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(51) **Int. Cl.**

A46B 17/06	(2006.01)
A61L 2/18	(2006.01)
A46B 9/04	(2006.01)
B65D 1/04	(2006.01)

(52) **U.S. Cl.**

CPC ***A46B 17/065*** (2013.01); ***A46B 9/04*** (2013.01); ***A61L 2/18*** (2013.01); ***B65D 1/04*** (2013.01); *A61L 2202/122* (2013.01); *A61L 2202/123* (2013.01); *A61L 2202/16* (2013.01)

(58) **Field of Classification Search**

CPC A46B 17/065; A46B 9/04; B65D 1/04; A61L 2/18

See application file for complete search history.

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Primary Examiner — Regina M Yoo

(74) *Attorney, Agent, or Firm* — Klauber & Jackson LLC

(57) **ABSTRACT**

A flexible bottle for containing a disinfecting liquid that can be used to disinfect a toothbrush. The bottle has a large reservoir for contain the disinfecting liquid and a small, secondary reservoir that is located proximate to the top of the bottle and which can be filled by squeezing the flexible bottle to force a quantity of the disinfecting liquid into the small, secondary reservoir. There is a cap that is designed to accept a toothbrush for entry into the container and which may have a slot formed therein or flexible flaps. The bottle can, therefore, be filled with disinfecting liquid and a toothbrush introduced into the small reservoir for disinfecting the toothbrush. The disinfecting liquid can then be discarded from the small reservoir and the secondary reservoir refilled as needed by the user.

5 Claims, 3 Drawing Sheets

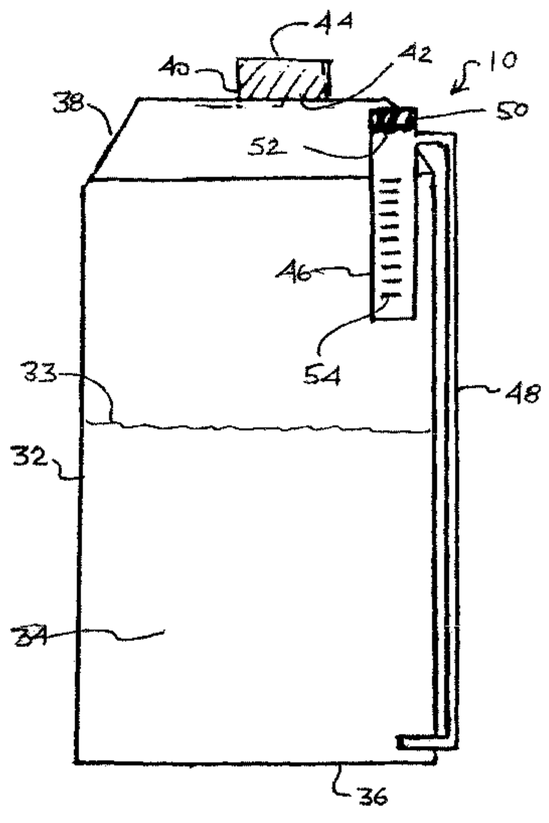

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FIG. 1

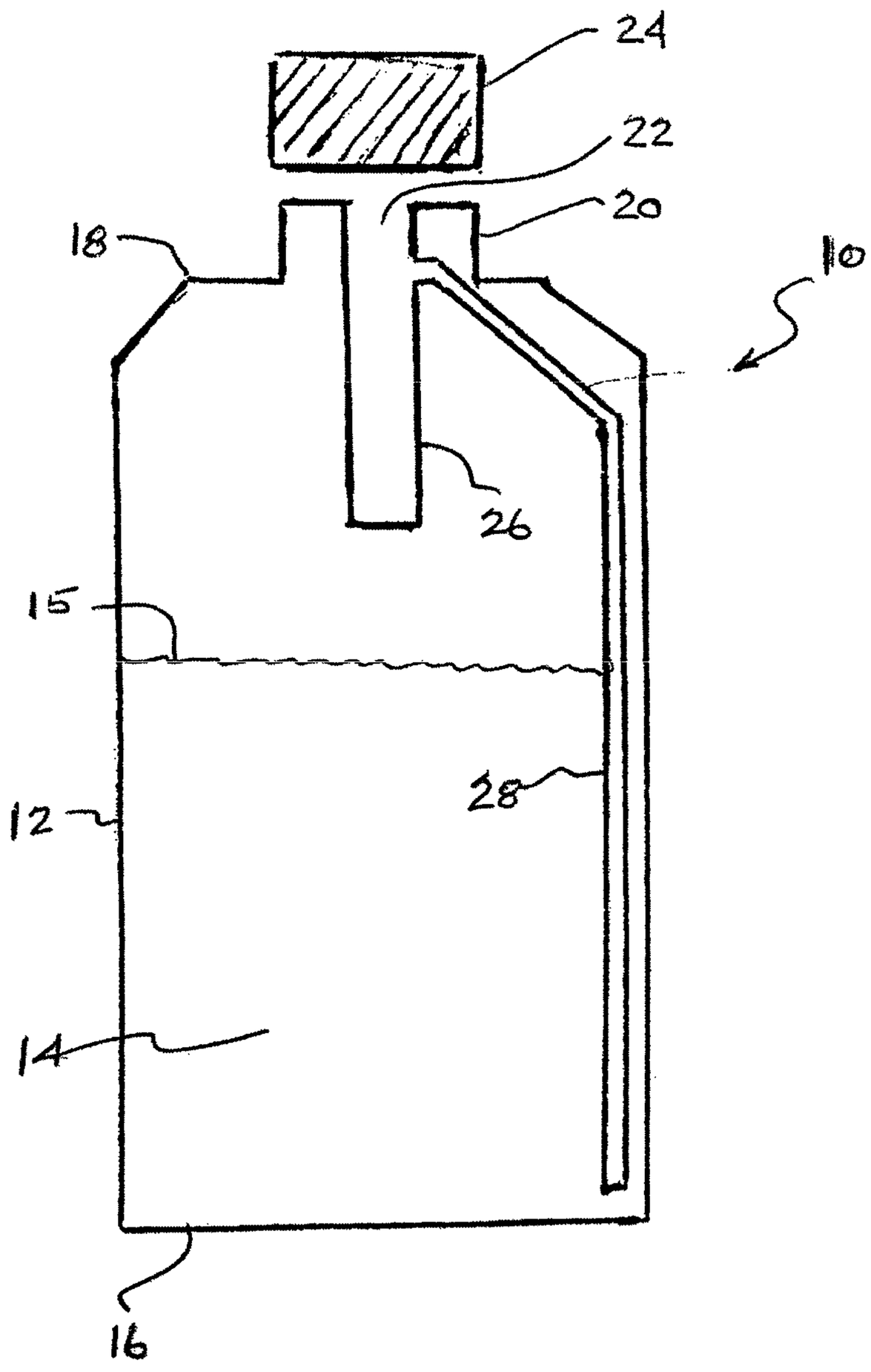


FIG. 2

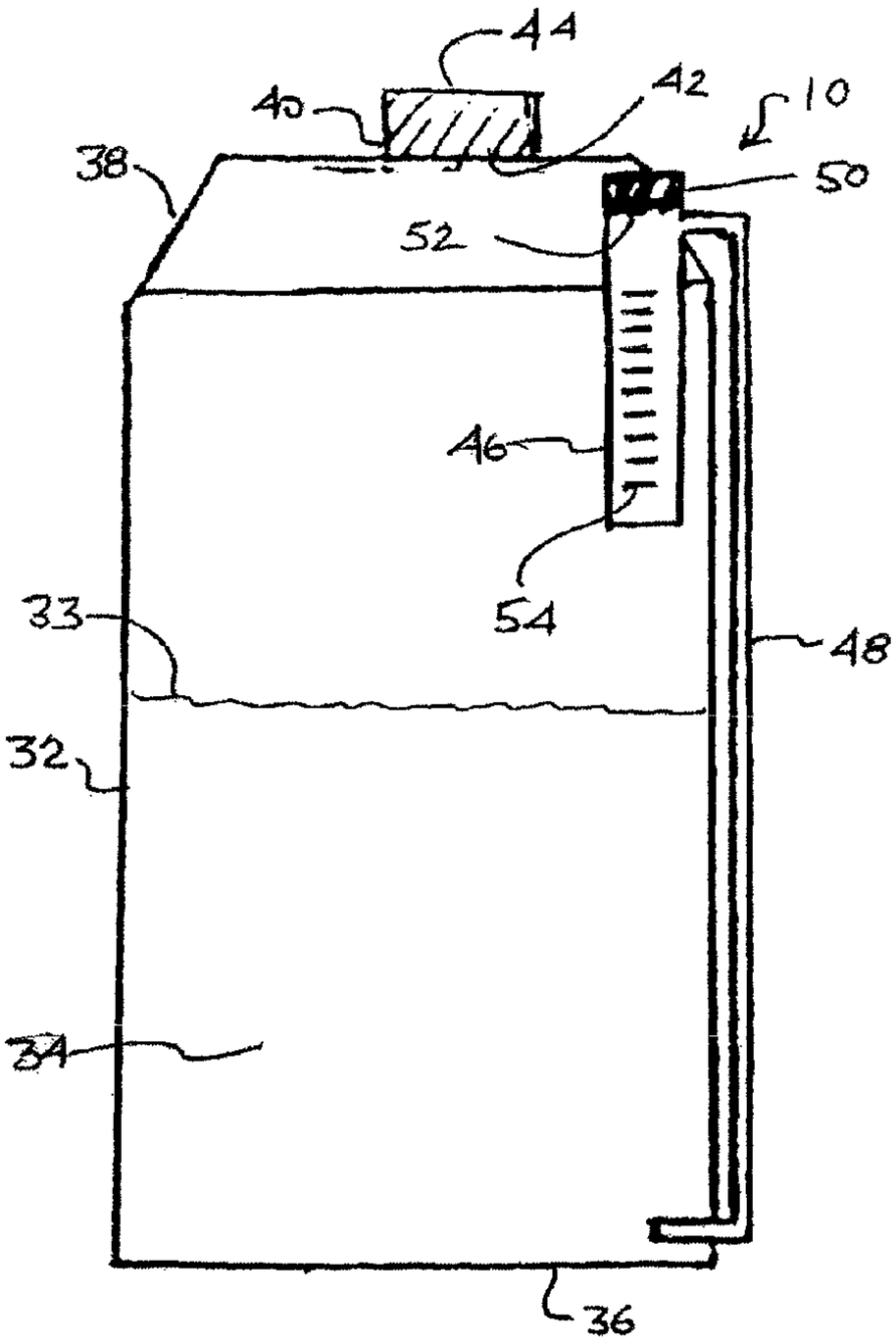


FIG. 3

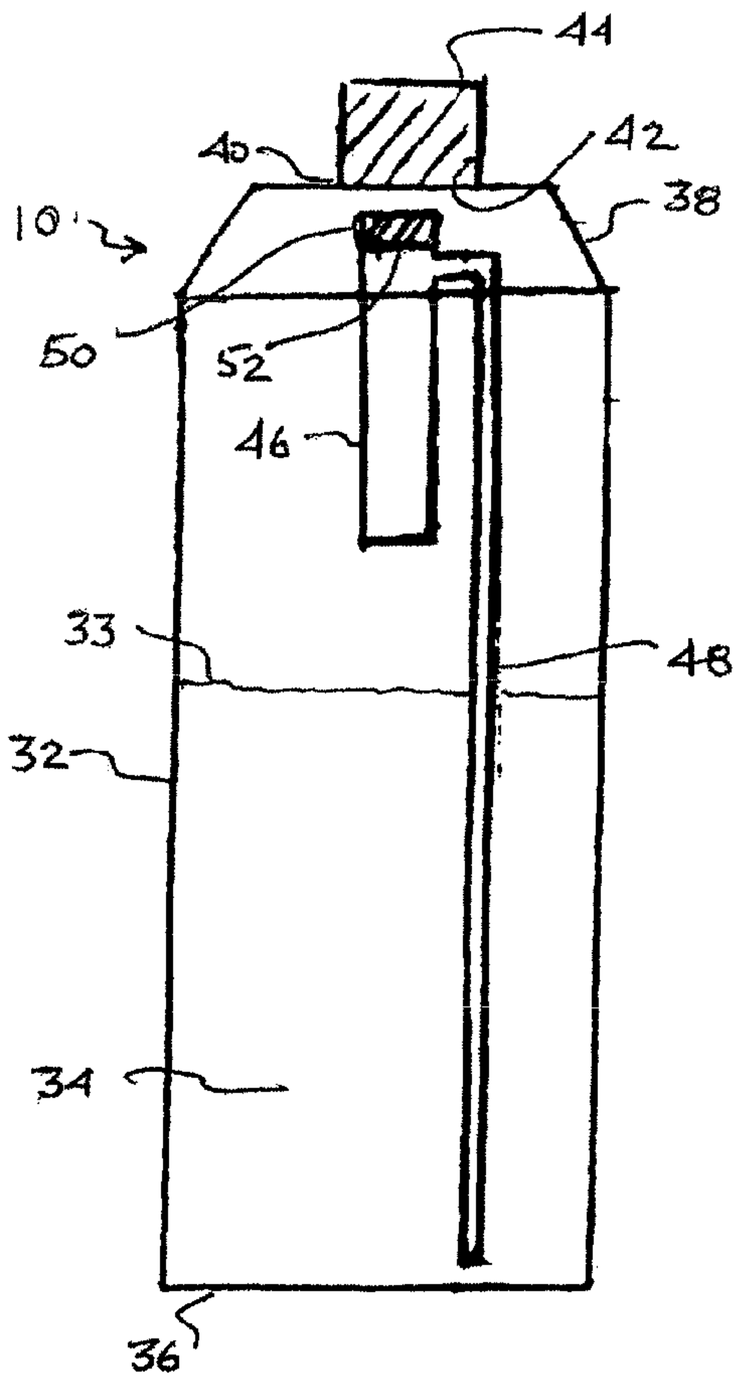


FIG. 4

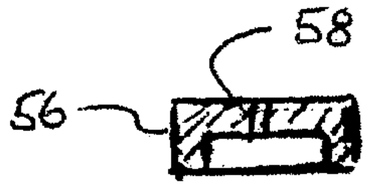


FIG. 5

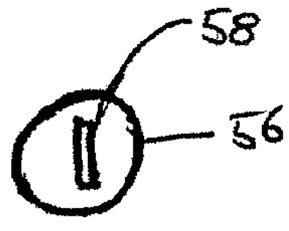
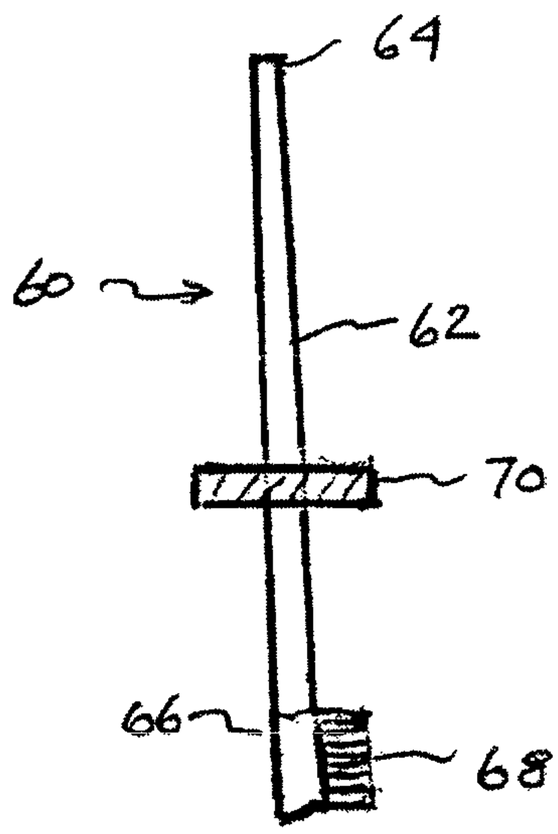


FIG. 6



BOTTLE FOR DISINFECTING TOOTHBRUSH

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a division of U.S. Ser. No. 13/489,519, filed Jun. 6, 2012 which claims the benefit of priority to U.S. Provisional Application No. 61/520,330, filed Jun. 8, 2011, the disclosures of which are herein incorporated by reference in their entireties.

BACKGROUND

The present invention relates to a bottle for disinfecting toothbrushes and, more particularly, to a flexible bottle having an easily filled secondary reservoir for receiving a toothbrush in the secondary reservoir for disinfecting that toothbrush.

With the use of toothbrushes, it is often advantageous to disinfect the cleaning bristles of a toothbrush periodically to maintain the toothbrush clean for use. A typical disinfecting liquid may be a mouthwash, such as Listerine brand mouthwash, and the disinfecting is carried out by immersing the bristles in the disinfecting liquid.

In general, bottles that are available commercially for disinfecting liquids are generally excessively large for the purpose of disinfecting a toothbrush and such bottles, if used to disinfect the toothbrush, are not generally desirable for later use as a supply of mouthwash. As an alternative, the user can pour out a small quantity of the disinfecting liquid into a small container and immerse the toothbrush bristles in that small quantity of liquid, however, it is somewhat inconvenient to have a small container on hand and may result in the user trying to continually locate a suitable container.

Accordingly, it would be advantageous to have a small, secondary reservoir for containing a small, measured amount of the disinfecting liquid normally carried in a large, main reservoir of a bottle in order to use that small, secondary reservoir for disinfecting a toothbrush.

It would be further advantageous that the small, secondary reservoir be actually affixed to or internally located within the larger bottle containing the disinfecting liquid so that the small, secondary reservoir is always available to the user along with the larger bottle.

It would be further advantageous to have a system that would allow the user to selectively fill the small, secondary reservoir with disinfecting liquid from the large, main reservoir, just prior to use and then allow the user to discard that used disinfecting liquid so that a fresh quantity of disinfecting liquid can be available to continually fill the small, secondary reservoir when needed.

SUMMARY OF THE INVENTION

Accordingly, the present invention overcomes the aforesaid problems and difficulties by providing a bottle for disinfecting a toothbrush that comprises a flexible container that forms a main reservoir where the liquid, such as a disinfecting liquid is contained. The flexible container has a top with a removable cap that seals an opening in the top and may be affixed to the top by means a screw threaded connection.

There is a secondary reservoir located proximate to the top of the container and that secondary reservoir is sized so as to hold a relatively small quantity of the disinfecting liquid sufficient for immersion of the bristles of a toothbrush. The secondary reservoir may be situated within the flexible container or may be exterior thereof. The secondary reservoir may have measured graduations that can be imprinted on the secondary reservoir to enable the user to accurately, visually determine the quantity of the disinfecting liquid held within the secondary reservoir.

A passageway is formed between the main reservoir and the secondary reservoir and, like the secondary reservoir, the passageway may be contained within the flexible container or exterior to the flexible container. As such, by simply squeezing the flexible container, the disinfecting liquid is forced from the main reservoir to the secondary reservoir where it is available for disinfecting a toothbrush.

Thus, the secondary reservoir can be filled and emptied according to its use in disinfecting a toothbrush without contaminating the disinfecting liquid contained in the main reservoir and there is a ready supply of fresh disinfecting liquid that can easily be pumped from the main reservoir to the secondary reservoir to replenish or refill the secondary reservoir.

These and other features and advantages of the present invention will become more readily apparent during the following detailed description taken in conjunction with the drawings herein.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a side view of a bottle constructed in accordance with the present invention;

FIG. **2** is front view of an alternate exemplary embodiment of the bottle of the present invention;

FIG. **3** is a side view of the embodiment of FIG. **2**;

FIG. **4** is a side cross-sectional view of a cap that is usable with the present invention;

FIG. **5** is a top view of the cap of FIG. **4**; and

FIG. **6** is a side view of a toothbrush that can be used with the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to FIG. **1**, there is shown a side view of the bottle **10** of the present invention. As can be seen, the bottle **10** comprises a flexible container **12** forming therein a main reservoir **14**. The main reservoir **14** is liquid tight and is adapted to contain a quantity of a disinfecting liquid **15**, such as a mouthwash.

The bottle **10** has a closed bottom **16** and a top **18** where there is a threaded lip **20** forming an opening **22**. A cap **24** is threaded to the threaded lip **20** to cover and uncover the opening **22**. A secondary reservoir **26** is located proximate to the top **18** internal of the flexible container **12** and the opening **22** leads into the secondary reservoir **26** to provide access to the secondary reservoir **26** when the cap **24** is removed. There is also a passageway **28** that communicates between the main reservoir **14** and the secondary reservoir **26**. The secondary reservoir **26** can be comprised of a molded plastic material and may be molded, such as by blow molding, along with the flexible container **12** or molded separately and affixed to the interior of the flexible container **12**. The passageway **28** may be a flexible plastic tube.

In any event, it can be seen that by removing the cap **24**, the flexible container **12** can be squeezed by a user to force a quantity of the disinfecting liquid **15** from the main reservoir **14** upwardly and into the secondary reservoir **26**.

As such, the secondary reservoir **26** can be readily filled with the disinfecting liquid upon the desire of a user.

At this point, the disinfecting liquid contained within the secondary reservoir **26** is accessible through the opening **22** so that a toothbrush can be inserted into the secondary reservoir **26** to disinfect that toothbrush.

If the user wants to access the contents of the main reservoir **14** to use the disinfecting liquid for purposes of a mouthwash, the secondary reservoir **26** may be filled as described and the contents poured from the secondary reservoir **26** into another container or used in a normal manner. If a large amount of the disinfecting liquid is desired to be removed for the bottle **10**, the secondary reservoir **26** may be filled by squeezing the flexible container **12** and filing the secondary reservoir **26** multiple times and, each time, pouring the contents of the secondary reservoir **26** outwardly through the opening **22**.

As can be seen, when the secondary reservoir is being filled with the disinfecting liquid **15** form the main reservoir **14**, the cap **24** must be removed to open the secondary reservoir **26** to the atmosphere.

Turning then to FIGS. **2** and **3**, there is shown a front view and a side view, respectively, of an alternate exemplary embodiment of the present invention wherein there is also a bottle **10** comprised of a flexible container **32** for containing a disinfecting liquid **23** within a main reservoir **34** having a bottom **36** and a top **38**. Again, there is a threaded lip **40** forming an opening **42** covered by a removable cap **44**.

In this embodiment, however, the secondary reservoir **46** is located external of the flexible container **42** and, as can be seen, passageway **48** passes through the flexible container **32** to the exterior thereof and then extends along the exterior of the flexible container **32** to the secondary reservoir **46** such that when the flexible container **30** is squeezed by a user, the disinfecting liquid passes along the exterior of the flexible container **32** to the secondary reservoir **46** that is located on the exterior of the flexible container **32**. In this embodiment, therefore, there is a secondary cap **50** that closes the open end **52** of the secondary reservoir **46**.

With this embodiment, when the secondary cap **50** is removed from the secondary reservoir **46** to open the secondary reservoir **46**, and the removable cap **44** is closed, the flexible container **32** can be squeezed to force the disinfecting liquid **33** from the main reservoir **34** up and into the secondary reservoir **40**. Alternatively, if the user desires to remove the contents of the bottle **10**, the secondary cap **50** can be affixed in its closed position and the removable cap **44** removed. The disinfecting liquid **33** can then be simply poured out of the opening **42** formed in the top **38** of the flexible container **32** in the normal manner.

In either of the embodiments of FIG. **1** and FIGS. **2** and **3**, there can also be measured graduations **54** present on the secondary reservoir **46** (shown only in FIG. **2**) so that the user can accurately determine the precise measure of liquid in the secondary reservoir **46** for the correct dosage of the disinfecting liquid or to be used to measure out a precise quantity of the disinfecting liquid for use.

Turning then to FIGS. **4**, and **5**, taken along with FIGS. **1-2**, there is shown a side cross sectional view and a top view of a cap **56** that can be used with the present invention. As can be seen, the cap **56** has a rectangular slit **58** formed therein for the introduction of a toothbrush therethrough. The cap **56** can be used to replace cap **24** of the FIG. **1** embodiment, that is, as the main cap of the flexible container **12**.

As such, the bottle **10** can be sold with a normal sealed cap so as to prevent leakage from the bottle **10** during handling in a store and then a cap **56** having a slit **58** can replace the normal cap in the household so that a toothbrush can be inserted into the bottle **10** with a minimum of leakage since the rectangular slit **58** can be dimensioned so as to create a snug fit between the rectangular slit **58** and a toothbrush handle. Alternatively, instead of a rectangular slit **58**, the cap **56** may have flexible flaps to allow entrance of a toothbrush while forming a seal against the toothbrush handle.

The cap **56** can also be used as the secondary cap **50** of the FIG. **2-3** embodiment under the same conditions.

Turning finally to FIG. **6**, there is a side view of a toothbrush **60** that can be used with the present invention. The toothbrush **60** comprises a handle **62** having a proximal end **64**, a distal end **66** and a set of bristles **68** located at the distal end **66**.

There is a sealing member **70** located between the proximal end **64** and the distal end **66** of the handle **62** and which is firmly affixed to or molded with the handle **62** of the toothbrush **60**. That sealing member **70** can be a sealing plug that allows the toothbrush **60** to be inserted into an open end of one of the secondary reservoir of FIGS. **1-3** so that the toothbrush **60** is effectively sealed within in a secondary reservoir.

Alternatively, the sealing member **70** may be a cap having screw threads that can be screwed into the flexible container **12** of FIG. **1** or the secondary reservoir **46** of the FIG. **2-3** embodiment and affix the bristles **68** of the toothbrush **60** in the disinfecting liquid contained within the secondary reservoir **46**. With the latter embodiment, the toothbrush **60** may be sold commercially already affixed to the bottle **10** and contained within a secondary reservoir.

As an advantage of the FIG. **6** embodiment, the secondary reservoir can be sealed to prevent dust or dirt from entering into the secondary reservoir and the sealing member **70** prevents the disinfecting liquid in the secondary reservoir from evaporating. As a further advantage a company can combine the manufacture and marketing of a toothbrush with a mouthwash product and take advantage of the possibility of bundling the two products together to achieve a commercial advantage and beneficial savings to the consumer.

As can now be seen, the present flexible container can be readily blow molded in conventional manner by an alteration of the current molds and no additional assembly or production steps need to be taken, other than adding an additional cap for the FIG. **2-3** embodiment. Since the bottle of the present invention can be produced with the same bottle dimensions as current bottles not having a secondary reservoir, there also need be no change to present shipping cartons. It is noted that the incorporation of the secondary reservoir may, however, slightly reduce the quantity of mouthwash contained in a bottle since some of the volume of the mouthwash in a container is taken up by the presence of the secondary reservoir in the FIG. **1** embodiment.

Those skilled in the art will readily recognize numerous adaptations and modifications which can be made to the toothbrush disinfecting bottle and its use of the present invention which will result in an improved bottle and method of its use, yet all of which will fall within the scope and spirit of the present invention as defined in the following claims. Accordingly, the invention is to be limited only by the following claims and their equivalents.

What is claimed is:

1. A method of disinfecting a toothbrush comprising the steps of:

providing a bottle comprising a flexible container forming a main reservoir containing a disinfecting liquid, the flexible container having a top having a first opening, a cap removably covering the first opening at the top of the flexible container, wherein the cap has a second opening having flexible lips allowing a toothbrush to pass therethrough, and a secondary reservoir located proximate to the top of the flexible container wherein the secondary reservoir has a third opening having a second cap affixed thereto, wherein the second cap has a rectangular opening for allowing a toothbrush to pass therethrough, and a passageway leading from the main reservoir to the secondary reservoir,

squeezing the flexible container to force the disinfecting liquid from the main reservoir to the secondary reservoir, and

inserting a toothbrush through the rectangular opening into the third opening to enter the secondary reservoir for contacting the toothbrush with the disinfecting liquid contained therein.

2. The method of claim 1 wherein the step of inserting a toothbrush through the rectangular opening into the third opening to enter the secondary reservoir includes the step of sealing a third opening.

3. The method of claim 1 wherein the-secondary reservoir is external.

4. The method of claim 1 wherein the step of squeezing the flexible container comprises squeezing the flexible container to force the disinfecting liquid through the passageway internal of the flexible container.

5. The method of claim 1 wherein the step of squeezing the flexible container comprises squeezing the flexible container to force the disinfecting liquid through the passageway external of the flexible container.

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